

ABSTRACT

A head coil for use with a parallel-imaging compatible MR system is disclosed, as is a method of making, and a neurovascular array (NVA) equipped with, same. The head coil includes conductive rings and rods configured to produce a plurality of electrically-adjacent primary resonant substructures about a birdcage-like structure, with each such primary resonant substructure including two rods neighboring each other and the short segment of each of the first and second rings interconnecting them. The primary resonant substructures are isolated from each other via a preamplifier decoupling scheme and an offset tuning scheme thereby enabling each primary resonant substructure (i) to receive an MR signal from tissue within its field of view and (ii) to be operatively couplable to one processing channel of the MR system for conveyance of the MR signal received thereby (iii) while being simultaneously decoupled from the other primary resonant substructures.